

Chapter 20

Agriculture—Mitigating Risk of Livestock Diseases

1.0 MAIN POINTS

The Ministry of Agriculture had effective processes, for the 12-month period ending August 2017, to minimize the risk of occurrence and spread of diseases of farmed animals in Saskatchewan other than in the two areas noted below.

To prevent and control the spread of diseases among farmed animals in Saskatchewan, the Ministry does the following. It maintains a list of 14 diseases it considers of sufficient threat to require provincial notification and monitoring. It carries out surveillance activities on almost one-half of its provincial notifiable diseases.

In the event of positive cases of notifiable diseases, for three notifiable diseases, the Ministry has formal written plans to respond. For the remaining notifiable diseases, it monitors the sufficiency of actions taken to treat diseased animals, and actions taken to prevent further spread of the disease.

Furthermore, the Ministry identifies new or emerging diseases, and has a documented plan to prevent foreign animal diseases from entering the province. It gives producers adequate information to educate them on disease risks, and disease prevention and control techniques.

However, the Ministry did not maintain support for its decisions on which diseases to include on the list, which diseases warrant surveillance, or the extent of its involvement in reported cases of livestock diseases.

While the Ministry maintains records on positive cases of notifiable livestock diseases to summarize key information about the case, its records are not complete. These records are the Ministry's main monitoring tool to determine if veterinarians and those contracted by the Ministry took sufficient actions to limit the spread of disease.

The livestock sector in Saskatchewan had average annual revenues around \$2 billion for the last three years. Disease outbreaks can impose significant effects on production, price and value of livestock products.

2.0 INTRODUCTION

This chapter sets out the results of our audit on the Ministry of Agriculture's processes to mitigate the risk of the occurrence and spread of diseases of farmed animals (livestock) in Saskatchewan.

2.1 Livestock Disease Responsibility

The regulation and control of certain animal diseases is a shared responsibility between the federal and provincial governments.



Federal laws (e.g., *The Health of Animals Act* and *The Reportable Diseases Regulations*) make the Canadian Food Inspection Agency responsible for regulating certain reportable animal diseases (see **Section 5.0** for a listing of federally reportable animal diseases). Reportable diseases are those diseases that have to be reported to the Canadian Food Inspection Agency if there is a suspected case in an animal.

Provincial laws (e.g., *The Diseases of Animals Act*) make the Saskatchewan Ministry of Agriculture responsible for preventing and controlling the spread of diseases among farmed animals in Saskatchewan. This includes responsibility for developing regulations to prevent and control any disease, and to inspect, test, vaccinate and quarantine animals.¹

In addition, the Ministry has the authority, by law, to direct investigations of alleged outbreaks of livestock disease, direct scientific investigations, and take steps to reduce the impact of an outbreak of a disease.

Cabinet, through regulations, has identified 14 livestock diseases requiring provincial notification and monitoring (see **Section 5.0** for a listing of provincial notifiable animal diseases). Diseases on the Provincial Notifiable Disease List are not federally reportable (with the exception of anthrax and rabies). Notifiable diseases are laboratory confirmed livestock diseases that require monitoring to detect and understand their presence in Saskatchewan.

2.2 Monitoring Livestock Diseases in Saskatchewan

The Ministry of Agriculture's *Plan for 2017-18* includes, as a key action, providing programs and funding to promote animal welfare, animal disease surveillance and prevention; to respond to emergency events; and for the prioritization of registration on the Premises Identification System.^{2,3}

Each year, the Ministry spends about \$5 million on preventing and controlling livestock disease. The Ministry's Livestock Branch, more specifically, the Animal Health Unit is tasked with this role. The Unit has a Chief Veterinary Officer and seven additional full-time staff responsible for livestock disease prevention and control.

The Ministry uses annual livestock-sector revenue as one of its performance measures. The Ministry's target is to increase annual cash receipts from farm livestock sales to above \$2.0 billion by 2020.⁴ As shown in **Figure 1**, Saskatchewan missed this target in 2016, but had exceeded its target in 2014 and 2015.

¹ Section 5(1): The Lieutenant Governor in Council may make regulations for the prevention and control of any disease.

² Ministry of Agriculture, *Plan for 2017-18*, p. 4.

³ The Saskatchewan Premises Identification System facilitates linking livestock and poultry to geographic locations for planning and responding to animal health issues and emergency response. www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/agricultural-programs-and-services/livestock-programs/saskatchewan-premises-identification-system (20 September 2017).

⁴ Ministry of Agriculture, *Plan for 2017-18*, p. 4.

Figure 1—Number of Animals and Dollar Value of Exports from Saskatchewan

Live animals exports from Saskatchewan	2014		2015		2016	
	Number (000s)	Dollars \$ (000s)	Number (000s)	Dollars \$ (000s)	Number (000s)	Dollars \$ (000s)
Hogs	1,707	299,604	1,881	337,528	1,927	340,560
Cattle	1,273	1,893,486	1,057	2,076,101	944	1,354,508
Poultry	640	10,133	627	10,035	559	8,949
Sheep	59	8,302	67	11,490	62	10,076
Bison	12	27,643	15	44,400	12	39,041
Game Farm ^A	2	1,234	1	3,251	1	1,112
Total	3,693	2,240,402	3,648	2,482,805	3,505	1,754,266

Information is for calendar years.

Source: Ministry of Agriculture records. Based on information from Statistics Canada.

^A Game Farm animals are shaded as these animals are outside of the scope of our audit.

The Ministry expects demand for Saskatchewan agri-food exports to remain strong and grow. Over the next 30 years, it expects projected global population growth to drive continued growth of the livestock sector.

2.3 Health and Economic Implications of Livestock Diseases

Animal disease, primarily in livestock, has long been a concern for food safety, animal welfare and the high economic losses it can cause. Outbreaks, or rumours of an outbreak, can result in widespread consumer alarm, disruption of trade, and severe effects on incomes, not to mention the human cost of illnesses and deaths arising from animal disease.⁵ Furthermore, research indicates that measures compensating financial losses at the farm level generate the highest share of government expenditures in the short run.⁶

For example, in 2003, the Canadian Food Inspection Agency reported finding bovine spongiform encephalopathy (BSE) in a cow from northern Alberta. The Government of the United States immediately closed its border to Canadian beef and cattle. About 40 countries followed suit resulting in the virtual shut down of the Canadian beef industry and a \$460 million compensation program cost-shared between the federal and provincial governments.⁷

Disease outbreaks can impose significant effects on production, price, and value of livestock products, which is particularly significant for exporting jurisdictions like Saskatchewan.

⁵ OECD, *Livestock Diseases: Prevention, Control and Compensation Schemes*, (2012). DOI: <http://dx.doi.org/10.1787/9789264178762-en>. (28 September 2017).

⁶ Inamura, M., Rushton, J., and Antón, J., *Risk Management of Outbreaks of Livestock Diseases*, (2015). www.oecd-ilibrary.org/agriculture-and-food/risk-management-of-outbreaks-of-livestock-diseases_5jrrwdp8x4zs-en (25 July 2017).

⁷ <http://globalnews.ca/news/1830438/timeline-canadas-2003-mad-cow-disease-crisis/> (14 June 2017).



3.0 AUDIT CONCLUSION

We concluded that for the 12-month period ended August 15, 2017, the Ministry of Agriculture had, other than the following areas, effective processes to minimize the risk of the occurrence and spread of diseases of farmed animals in Saskatchewan. The Ministry needs to:

- **Maintain support for which livestock diseases it places on the notifiable disease list, conducts surveillance activities on, and/or maintains response plans for**
- **Consistently document its assessment of the sufficiency of actions taken for confirmed notifiable disease cases**

Figure 2—Audit Objective, Criteria, and Approach

Audit Objective: The objective of this audit is to assess the effectiveness of the Ministry of Agriculture's processes, used in the 12-month period ending August 15, 2017, to mitigate the risk of the occurrence and spread of diseases of farmed animals in Saskatchewan.

For the purpose of this audit, farmed animals do not include domestic game farm animals. Domestic game farm animals are antelope, caribou, reindeer, elk, moose, deer, bighorn sheep, or mountain goats held in captivity.

Audit Criteria:

Processes to:

1. Consistently prevent and early detect livestock diseases
 - 1.1 Systematically identify, assess, and prioritize threats of occurrence of livestock diseases
 - 1.2 Develop plan with key parties (e.g., Health, Environment, third parties) for prevention and early detection
 - 1.3 Increase stakeholder awareness on disease prevention and detection techniques (e.g., biosecurity), emergency animal disease preparedness, and disease reporting responsibilities
2. Promptly respond to incidents or reported or suspected diseases
 - 2.1 Use surveillance activities to identify suspected livestock disease
 - 2.2 Structure incident response approach to minimize risk of spread
 - 2.3 Timely investigation of reported or suspected diseases

Audit Approach:

To conduct this audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook – Assurance* (including CSAE 3001). To evaluate the Ministry of Agriculture's processes, we used the above criteria based on our related work, reviews of literature including reports of other auditors, consultations with management and an external expert. The Ministry of Agriculture's management agreed with the above criteria.

We examined the Ministry of Agriculture's procedures, records, and agreements with third parties (e.g., Prairie Diagnostic Services, Rabies Risk Assessment Veterinarian) that relate to livestock diseases prevention and control. We interviewed staff at the Ministry and Prairie Diagnostic Services responsible for mitigating the risk of occurrence and spread of livestock disease. We examined the process for timely notification of positive test results of notifiable diseases for a sample of items and sampled investigations performed on reported notifiable diseases.

4.0 KEY FINDINGS AND RECOMMENDATIONS

In this section, we describe our key findings and recommendations related to the audit criteria in **Figure 2**. Unless otherwise noted, references to the Ministry refer to the activities of the Animal Health Unit of the Ministry of Agriculture.

4.1 Processes to Identify New or Emerging Diseases Reasonable

The Ministry has established various ways to keep informed of new and existing livestock diseases in Canada and throughout the world. This assists the Ministry to keep aware of current and potential threats to the province.

The Ministry obtains information by reading veterinary newsletters, being on email lists of veterinary groups, and subscribing to an internet-based reporting system that reports on global emerging diseases. In addition, the Ministry routinely exchanges information on cases of animal diseases (e.g., outbreaks, treatment options, and prevention and control techniques) with its counterparts in other provinces.

In addition, Saskatchewan's Chief Veterinary Officer participates in monthly calls with other provincial Chief Veterinary Officers. They discuss current issues related to animal health. They share strategies and resources (e.g., lessons learned) to promote and protect livestock. Ministry representatives attend meetings and conferences arranged by livestock industries associations and the Saskatchewan Veterinary Medical Association.

4.2 Rationale for Including Diseases on Notifiable Disease List and Requiring Response Plans Needed

The Ministry did not keep support for the basis of its decisions on which livestock diseases it included on its notifiable disease listing (see **Section 5.0**). Nor has the Ministry kept support for its decisions on the extent of its involvement in reported cases of diseases on its listing (e.g., for which diseases it requires a response plan).

Diseases to Include on Provincial Notifiable Disease List

The Ministry developed its own Provincial Notifiable Disease List in 2013 because of a Canadian Food Inspection Agency decision. In 2013, the Agency stopped responding to cases of rabies and anthrax diseases even though they are on its reportable list.

At August 2017, the provincial notifiable listing includes 14 diseases.

Ministry staff advised us that it used the knowledge of veterinarians on staff to identify and select which diseases to include on its list. It said that it considered each disease's impact on livestock, impact on human health, diseases with high public interest, and those likely to occur in the province. In addition, it said that it consulted with provincial livestock industry associations to determine the livestock diseases that could significantly impact the industry in event of an outbreak. It did not document these decisions or the results of the assessments (e.g., why a disease is or is not on the notifiable disease list).

Reported Cases of Diseases Requiring Ministry Involvement

The Ministry has determined its level of involvement in positive disease cases. For three notifiable diseases (i.e., anthrax, rabies, porcine epidemic diarrhea), the Ministry decided to take an active role and to take a monitoring role on the remaining 11 notifiable diseases.



An active role is where the Ministry works with the attending private veterinarian (local veterinarian) to help ensure the local veterinarian takes the necessary steps to reduce the risk of spread of the disease (e.g., quarantine the animal, properly destroy and dispose of the animal). As part of taking an active role, the Ministry staff may respond to a diseased animal.

Whereas a monitoring role is where the Ministry only receives reporting from the local veterinarian on the history of the diseased animal (e.g., vaccination history, locations the animal has travelled) and the treatment given. The Ministry does not take any additional steps.

The Ministry indicated that it based its decisions on the extent of its involvement on assessments of risk and consultation with livestock industry associations. It decided that risks associated with anthrax,⁸ rabies,⁹ and porcine epidemic diarrhea warranted active involvement as a positive case of them could have a critical impact on livestock, the livestock industry and potentially human health. As such, it decided it required a plan for each that would guide responses in the event of a positive case (i.e., response plans). It did not document its assessments of risk.

Anthrax cases are rare in Saskatchewan. There were only four cases from 2014 to July 2017. Positive cases of rabies in livestock are also rare. In 2016, Saskatchewan had four positive cases of rabies in livestock, two of which required quarantine of livestock. As of August 2017, there have been no cases of porcine epidemic diarrhea found in animals in Saskatchewan.

In addition, as *The Diseases of Animal Act* allows, the Ministry contracted a Rabies Risk Assessment Veterinarian to investigate rabies diseases on its behalf.

For those diseases on the Provincial Notifiable Disease List not requiring response plans, the Ministry takes a monitoring role. The Ministry expects the local veterinarian to give it updates on the case (e.g., vaccination and travel history). For example, if the Ministry becomes aware of a horse with West Nile virus, instead of the Ministry responding formally to the positive test, it requests the local veterinarian to provide information on the animal's vaccination history and the locations where the animal has been. It uses this information to assess effectiveness of the vaccine and determine where the animal may have contracted the disease.

Determining which diseases to investigate, and which to develop response plans for is crucial to mitigating the occurrence and spread of livestock diseases. One incident of a particular disease can have significant economic consequence to the livestock industry. As mentioned in **Section 2.3**, one case of BSE found in 2003 caused significant losses to the Canadian beef industry.

Having clear and documented assessments of the impact and likelihood of diseases occurring provides for stronger decision-making processes. Having documented basis of decisions provides key support to decisions. In addition, it makes it easier to revisit for changing circumstances and decisions are more defensible by capturing the logic behind those decisions (e.g., rationale for including certain diseases on the notifiable disease list

⁸ Anthrax is a bacterial disease caused by *Bacillus anthracis*. Anthrax is a zoonotic disease, which means it can be transmitted to humans. However, human infections are extremely rare.

⁹ Rabies is a viral disease that attacks the central nervous system of mammals. In Saskatchewan, rabies is most often found in skunks and, to a lesser extent, bats. Rabies may infect livestock and can also infect humans.

and excluding others, or requiring response plans for some but not others). It also assists in the event of staff turnover.

1. **We recommend that the Ministry of Agriculture maintain support for its decisions on which livestock diseases to include on its notifiable disease list.**
2. **We recommend that the Ministry of Agriculture maintain support for its decisions on which livestock diseases require response plans.**

4.3 Content of Response Plans Reasonable

At August 2017, the Ministry maintained adequate response plans for anthrax, rabies, and porcine epidemic diarrhea.

The Ministry said that it consulted with other neighbouring provinces (i.e., Alberta and Manitoba) when developing each of these disease response plans. This assists in having a consistent approach among the provinces and allows for cross-border co-ordination.

The Ministry uses the response plans to set out the roles and responsibilities of the Ministry, local veterinarians, and for rabies, the Rabies Risk Assessment Veterinarian, in the event of a disease outbreak. The Ministry has established clear objectives and detailed procedures in each response plan. The Ministry updates these plans annually.

These plans contain sufficient information to address key areas (i.e., timeliness of notification, timeliness of incident response, and expected outcomes). For each disease with a response plan, if a positive case is identified, the Ministry contracts veterinarians to take disease control actions to address the case and prevent spread (e.g., vaccinate remainder of herd, quarantine the diseased animal, and/or destroy the animal).

The Anthrax Response Plan outlines steps and measures regarding managing anthrax. In the event of a positive case, the Ministry's inspector or the local veterinarian is to quarantine the affected pasture and exposed (or potentially exposed) animals to prevent the spread of anthrax through the movement of animals. Inspectors or local veterinarians are to provide necessary information to the owner on anthrax prevention and management, carcass disposal, cleaning and disinfecting directions, and confirm that the owner took appropriate actions. The Ministry notifies the Ministry of Health in case of human contact with a diseased animal.

Under the Rabies Response Plan, the Rabies Risk Assessment Veterinarian receives test result reports from the Canadian Food Inspection Agency, and notifies the local veterinarian, the animal owner, and the Ministry of test results. The Rabies Risk Assessment Veterinarian also notifies the Medical Health Officer at the Ministry of Health in the case of human contact with a diseased animal. When a positive test result in a livestock animal is confirmed, the Rabies Risk Assessment Veterinarian works with the animal owner to ensure that appropriate disease control actions are taken. For example, the Rabies Risk Assessment Veterinarian can order animals be placed under quarantine. Such animals are not allowed to move (e.g., between pastures or off the farm) without the Rabies Risk Assessment Veterinarian's permission.



Under the Porcine Epidemic Diarrhea Response Plan, in the event of a positive case, the pork industry association (i.e., SaskPork) is responsible to carry out the Ministry's plan.

We reviewed the Ministry's three response plans. We found each contained adequate information to assist the Ministry in responding to a disease outbreak. There were no instances where the Ministry activated response plans for the 12-month period ended August 15, 2017 (our audit period). Response plans included clear and understandable information on:

- How to take samples from potentially diseased livestock
- Who to notify when a positive case is found (i.e., Chief Veterinary Officer)
- How quickly notification must take place (i.e., within 24 hours)
- The Ministry's role versus that of the veterinarian in responding to the disease

4.4 Disease Prevention Systems in Place

The Ministry has a documented plan to prevent foreign animal diseases from entering the province. In addition, it provides adequate information to producers to educate them on disease risks, and disease prevention and control techniques.

Plan in Place to Prevent the Spread of Foreign Animal Diseases

In 2010, the Ministry used information from Alberta, Ontario, British Columbia, and the Canadian Food Inspection Agency to develop the Saskatchewan Foreign Animal Disease Emergency Support Plan. This plan relates to reportable (i.e., diseases on the Federally Reportable Disease List) and/or emerging diseases (i.e., diseases not currently found in Canada).

We found the Foreign Animal Disease Emergency Support Plan contained adequate information to assist the Ministry in the event of the introduction of a foreign animal disease. The Foreign Animal Disease Emergency Support Plan includes clear information on prevention of diseases (e.g., providing training and awareness to veterinarians, enhancing surveillance and biosecurity activities on farms and veterinary clinics), how to respond to an identified incident of a disease, recovery from the outbreak, and on roles and responsibilities of each party (e.g., the Ministry, Canadian Food Inspection Agency).

There were no instances for the 12-month period ended August 15, 2017 (our audit period), where the Ministry activated the Foreign Animal Disease Emergency Support Plan.

Actively Educating Producers about Disease Risks, Prevention, and Control

The Ministry uses a variety of activities to actively educate producers about disease risks and preventative and control measures for diseases.

Disease prevention measures are especially important in the light of a recent porcine epidemic diarrhea outbreak in Manitoba that began in May 2017. The Government of

Manitoba confirmed cases of the fatal virus for piglets in 72 sites.¹⁰ The first confirmed case of the virus in Canada was in January 2014 in Ontario, just as an outbreak swept through the U.S. killing more than eight million piglets.¹¹ Strict biosecurity practices help prevent and limit the spread of the virus.

Saskatchewan does not have mandatory provincial biosecurity standards; rather it promotes the Canadian Food Inspection Agency's biosecurity standards for Saskatchewan livestock industries for preventing disease occurrence and transmission. These biosecurity measures include controlling access to livestock premises, creating a herd health plan (e.g., isolating diseased animals from the herd), proper washing of livestock pens and transportation trucks, changing of clothing prior to entering livestock areas, and handwashing.

To promote these practices and to increase awareness of producers and veterinarians, the Ministry publishes articles and newsletters. For example, the Ministry regularly publishes articles on animal health and current issues in its monthly newsletter, *Agriview*.¹² Also, the Ministry publishes information on animal diseases and disease management practices in the Saskatchewan Veterinary Medical Association news magazine and its website.¹³

In addition, the Ministry supports biosecurity programming to the sheep and beef industries. The Ministry spent approximately \$350,000 on biosecurity programming in 2016-17. Programming included funding for workshops, advertising, tradeshow, awareness campaigns, and veterinary visits to farms. The Ministry requires and reviews reports on these projects. It uses this information to determine program need, and whether to continue its support for them.

4.5 Rationale for Early Disease Detection Practices Needed

To help detect livestock diseases early, the Ministry takes a multi-faceted approach. It recognizes that early detection and timely response can reduce the overall costs to industry and Government. The Ministry did not keep support to explain how it decided which diseases to perform surveillance activities on in the province.

Surveillance activities include taking samples from animals for laboratory testing. Testing allows analysis of strains of diseases occurring in the province. It also provides researchers with information on diseases occurring in the province, and an opportunity to determine how to prevent the disease or minimize the spread.

Rationale for Surveillance Activities Needed

The Ministry has surveillance activities carried out on 6 of the 14 provincial notifiable diseases. It hires and leverages outside organizations and individuals to do these activities.

¹⁰ www.gov.mb.ca/agriculture/animals/animal-health/porcine-epidemic-diarrhea.html (16 October 2017).

¹¹ www.todayville.com/manitoba-pork-farmers-scramble-to-contain-virus-thats-fatal-for-piglets/ (15 September 2017).

¹² *Agriview* website: www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/agricultural-programs-and-services/information-services-for-agribusiness-farmers-and-ranchers/agriview. (29 September 2017).

¹³ Saskatchewan Veterinary Medical Association website: <http://svma.sk.ca/index.php?p=newsletter>. (29 September 2017).



Each year, the Ministry contracted various organizations (e.g., Western College of Veterinary Medicine, Prairie Diagnostic Services, Saskatchewan Veterinary Medical Association) to early identify the presence of livestock diseases in the province. Each year, about \$1.5 million is spent on surveillance activities in the province; the Federal Government provides most of this funding.^{14,15}

In 2017, its surveillance activities included regular testing for rabies, porcine epidemic diarrhea, anthrax, swine delta virus, swine influenza, and transmissible gastroenteritis. However, the Ministry did not have support that showed why it selected these particular diseases and not others included on its notifiable list. In addition, it did not have a long-term plan indicating its future plans for disease surveillance.

The Ministry cannot prevent instances of livestock disease in the province, but doing sufficient surveillance activities are key to minimizing risks of occurrence of livestock disease. Having support for the basis of selecting which diseases to surveil and when, helps show that it is doing enough. It also assists in the event of staff turnover.

3. We recommend the Ministry of Agriculture maintain support for its decisions on which notifiable livestock diseases to have surveillance activities performed.

The Ministry monitors and assesses its surveillance programs by reviewing reports.

We reviewed three of five contracts for surveillance activities related to notifiable diseases and found that they were current, included clear objectives, and contained reporting requirements. These contracts provided the Ministry with sufficient and timely information to minimize the risk of occurrence and spread of livestock diseases being monitored.

In addition, we found the Ministry had adequate agreements for other surveillance activities with outside organizations and individuals (e.g., Prairie Diagnostic Services, University of Saskatchewan, and Rabies Risk Assessment Veterinarian). We also found it sufficiently monitored the work performed on its behalf.

Reliance on Farmers and Veterinarians for Initial Detection

With farmers and veterinarians being in direct contact with diseased livestock, the Ministry relies on them to detect and report diseases when they occur.

As noted earlier in **Section 4.4**, the Ministry educates farmers on noticing the signs of a diseased animal. The Ministry relies on farmers to know their animals best. It recognizes farmers have a stake in taking the necessary steps (i.e., notify a local veterinarian) to protect their herds and source of income.

The Ministry expects veterinarians to follow their professional code of conduct and use professional knowledge to provide appropriate care (e.g., follow-up, vaccination) for animals. Under the veterinarian's code of conduct, they must provide adequate care to animals.¹⁶ This makes them a good source for the Ministry for identifying diseased

¹⁴ Information provided by the Ministry of Agriculture.

¹⁵ The majority of this funding comes from the Federal Government through grants from the Growing Forward 2 (GF2) Agreement. GF2 is a five-year (2013-18) policy framework for Canada's agricultural and agri-food sector. GF2 is a \$3 billion investment by federal, provincial, and territorial governments and the foundation for government agricultural programs and services.

¹⁶ www.canadianveterinarians.net/about/veterinary-oath (3 August 2017).

animals. If a veterinarian suspects an animal has a potential notifiable disease, they take samples from the animal for laboratory testing.

The Ministry provides veterinarians with additional resources to assist in diagnosis of diseased livestock. It has a contract with the Disease Investigation Unit at the Western College of Veterinary Medicine¹⁷ to support the livestock industry and veterinarians. This Unit can provide and manage additional investigations of complex cases of animal disease. This enhances the Ministry's preparedness for responding to livestock diseases and reduces the economic impact on the province.

Once test results return, veterinarians administer the required care (e.g., vaccination, medication, follow-up examination, and/or destruction of the animal) to the animal. The Ministry monitors the veterinarians' actions through discussions with the veterinarians on the actions taken.

Diagnostic Testing Services Adequate

The Ministry receives prompt notification of positive instances of livestock diseases on its listing. Prairie Diagnostic Services Inc. notifies the Ministry of positive notifiable diseases except rabies.¹⁸

Prairie Diagnostic Services is the main veterinary diagnostic laboratory in the province. It tests samples that veterinarians submit. It is jointly owned and funded by the Ministry and the University of Saskatchewan.

Under a memorandum of understanding between the Ministry and Prairie Diagnostic Services, Prairie Diagnostic Services sends automated reports to the Chief Veterinary Officer in the event of a positively confirmed notifiable disease. An authorized user (i.e., pathologist) from Prairie Diagnostic Services' laboratory verifies and signs notification reports prior to sending them to the Ministry.

We found that the memorandum of understanding adequately documented both the Ministry and Prairie Diagnostic Services' responsibilities in relation to livestock disease detection.

Unlike the rest of the provincial notifiable diseases, rabies samples are sent to the Canadian Food Inspection Agency's Lethbridge laboratory for confirmation testing.

In the event of a suspected rabies case, the Ministry relies on its contracted veterinarian, the Rabies Risk Assessment Veterinarian. The Rabies Risk Assessment Veterinarian:

- Gives the local veterinarians information to collect samples from the potentially rabid animal, and assigns tracking numbers to all samples that are to be sent to Lethbridge
- Co-ordinates shipping the samples to the diagnostic laboratory in Lethbridge

¹⁷ The Western College of Veterinary Medicine is part of the University of Saskatchewan and is funded by the Provincial Government. For its Disease Investigation Unit website see: www.usask.ca/vmc/large-animal/swine/disease-investigations.php (28 September 2017).

¹⁸ Prairie Diagnostic Services is located at the Western College of Veterinary Medicine in Saskatoon with laboratories integrated directly into the College. The laboratory provides a full range of diagnostic services including: necropsy, surgical pathology, clinical pathology, histology, bacteriology, immunology, molecular diagnostics, virology, and toxicology. Website: www.pdsinc.ca/ (3 August 2017).



The Rabies Risk Assessment Veterinarian uses the tracking numbers to follow-up with any local veterinarians' samples that have not been submitted within one day of taking the sample. This makes the risk of samples not being tested promptly low.

Timely Notification of Positive Cases

The Ministry is notified of Prairie Diagnostic Services laboratory-confirmed cases within 24 hours of positive notifiable livestock diseases.¹⁹ The Ministry posted this requirement with the contact information of the Chief Veterinary Officer on its website.²⁰

The Ministry receives all Prairie Diagnostic Services test results related to provincial notifiable diseases. The Laboratory Information Management System (an IT system) at Prairie Diagnostic Services contains comprehensive information on every laboratory test to confirm or deny the existence of a livestock disease in the specimen provided. The Ministry requested Prairie Diagnostic Services provide automatic reporting sent via email in the event of a positive notifiable disease case.

For items in the sample we tested, we found notification occurred within 24 hours on all positive notifiable diseases as required.

Premises Identification System Established

At August 2017, management indicated the Ministry was in the process of collecting producer information for its Premises Identification System. The main purpose of this system is to track the location and movement of livestock. Once fully operational, the Ministry expects the system to assist in tracking the movement of livestock with confirmed cases of diseases.

4.6 Record Keeping on Actions Taken Needs Improvement

The Ministry maintains records on positive cases of notifiable livestock diseases to summarize key information about the cases, but its records are not complete. These records are the Ministry's main monitoring tool to determine if veterinarians and those contracted by the Ministry took appropriate actions.

The Ministry receives various pieces of information on suspected and identified cases of notifiable livestock diseases from a number of different sources at differing points of time. For example, it receives initial reports and then later updates from local veterinarians, and its contracted organizations and/or veterinarians. It also receives results of laboratory testing from either Prairie Diagnostic Services or Lethbridge (for rabies cases).

Upon receiving reports of positive cases from Prairie Diagnostic Services and following up with local veterinarians, Ministry staff keep records of positive cases (e.g., number and location of positive cases) and outcomes of each case. It records key actions taken to

¹⁹ Minister Order updating the Provincial Notifiable Animal Disease List under *The Diseases of Animals Act*. Approved February 14, 2014.

²⁰ www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/livestock/animal-health-and-welfare/notifiable-disease-list (17 September 2017).

reduce the risk of spread (particularly actions of organizations/veterinarians it has contracted).

The Ministry uses this information to monitor the sufficiency of actions taken in response to positive cases of notifiable diseases. As its response plans require, it is more active in positive cases of anthrax, rabies, and porcine epidemic diarrhea.

For sampled cases of diseases with response plans, we found investigations took place in accordance with timelines and procedures set out in the response plans. For sampled cases of diseases with no response plans, we found evidence that the Ministry followed up with the veterinarians working with animal owners on steps taken to address the diseased animal to determine whether steps taken were appropriate.

For all positive rabies cases we tested, the Rabies Risk Assessment Veterinarian notified the appropriate individuals (e.g., local veterinarian, animal owner, the Ministry).

However, we found that in nine cases, information in the Ministry's centralized records was not complete (e.g., veterinary actions taken on positive cases not always documented).

Keeping complete, accurate records will help the Ministry to manage livestock diseases and ensure that its contracted third parties take appropriate actions to resolve positive cases of notifiable livestock diseases. Complete records will also provide the Ministry with a permanent record of its assessment of the sufficiency of actions taken.

4. We recommend that the Ministry of Agriculture consistently document its analysis of the sufficiency of actions taken on all positive cases of notifiable livestock diseases.

5.0 FEDERALLY REPORTABLE LIVESTOCK DISEASES AND PROVINCIAL NOTIFIABLE LIVESTOCK DISEASES

Both federal and provincial governments require the reporting of the livestock diseases listed in the following table. Canada calls these reportable diseases; and Saskatchewan calls these notifiable diseases. Both Canada and Saskatchewan require reporting of instances of anthrax and rabies (see bold font).

Federally Reportable Livestock Diseases ^A	Provincial Notifiable Livestock Diseases ^B
<ul style="list-style-type: none"> ➤ African horse sickness ➤ African swine fever ➤ Anthrax ➤ Bluetongue ➤ Bovine spongiform encephalopathy (BSE) ➤ Bovine tuberculosis ➤ Brucellosis ➤ Chronic wasting disease ➤ Classical swine fever ➤ Contagious bovine pleuropneumonia ➤ Contagious equine metritis 	<ul style="list-style-type: none"> ➤ Anthrax ➤ Bovine Anaplasmosis ➤ Equine Herpes Virus ➤ Infectious Laryngotracheitis ➤ Lyme Disease ➤ Malignant Catarrhal Fever ➤ Porcine Epidemic Diarrhea ➤ Q Fever ➤ Rabies ➤ Salmonella Enteritidis ➤ Swine Delta Coronavirus



Federally Reportable Livestock Diseases ^A	Provincial Notifiable Livestock Diseases ^B
<ul style="list-style-type: none"> ➤ Cysticercosis ➤ Equine infectious anaemia ➤ Equine piroplasmiasis ➤ Foot and mouth disease ➤ Fowl typhoid ➤ Lumpy skin disease ➤ Newcastle disease ➤ Notifiable avian influenza ➤ Peste des petits ruminants ➤ Pseudorabies ➤ Pullorum disease ➤ Rabies ➤ Rift Valley fever ➤ Rinderpest ➤ Scrapie ➤ Sheep and goat pox ➤ Swine vesicular disease ➤ Trichinellosis ➤ Venezuelan equine encephalomyelitis ➤ Vesicular stomatitis 	<ul style="list-style-type: none"> ➤ Swine Influenza ➤ Transmissible Gastroenteritis ➤ West Nile Virus

^A This listing is partial in that it only includes livestock diseases. www.inspection.gc.ca/animals/terrestrial-animals/diseases/reportable/eng/1303768471142/1303768544412 (18 July 2017).

^B www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/livestock/animal-health-and-welfare/notifiable-disease-list (20 September 2017).

6.0 SELECTED REFERENCES

Food and Agriculture Organization of the United Nations. (2011). *A Value Chain Approach to Animal Diseases Risk Management*. Rome: Author.

Office of the Auditor General of Canada (2010). *2010 Fall Report – Chapter 9. Animal Diseases – Canadian Food Inspection Agency*. Ottawa: Author.

Victorian Auditor-General. (2015). *Biosecurity: Livestock*. Melbourne: Author.

Victorian Auditor-General. (2008). *Biosecurity Incidents: Planning and Risk Management for Livestock Diseases*. Melbourne: Author.